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GEO 101N.02: Introduction to Physical Geology

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Introduction to Physical Geology



GEO101N-02, 3 credits, Spring 2014

Instructor: Liane Stevens
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Lecture Meetings: MWF, 2:10-3:00 PM, CHCB 131

Office Hours: Tues., 1:00-2:00 PM; Wed., 3:00-4:00 PM; or by appointment

Course Description: This course is an introduction to geosciences, the study of how Earth works. People around the world are impacted every day by geologic hazards and by access to natural resources. This course will help you develop a better understanding of the physical processes that have shaped Earth as we know it, and an awareness of Montana's place in the global picture. This knowledge will help you make intelligent decisions about the geoscientific issues that affect humankind.

Course Objectives: After completing this course, you will be able to:

- 1) Describe, analyze, and assess geologic features, processes, and events that impact your life.
- 2) Use evidence (from rocks, maps, graphs, etc.) to support an interpretation or explain a concept.
- 3) Understand the general principles associated with the discipline of geosciences, including:
 - Geoscientists use repeatable observations and testable ideas to explain and understand Earth.
 - Earth is 4.6 billion years old, and has had a complex and varied history.
 - Earth is a complex system of interacting rock, water, air, and life.
 - Earth is continuously changing, primarily due to active plate tectonics.
 - Humans depend on Earth for resources that are formed by geologic processes.
 - Natural hazards pose risks to humans, and must be understood to minimize and mitigate risks.
 - Humans significantly alter the Earth; in turn, geologic processes have impacted the development of human civilization.

Required Materials:

- *Exploring Geology*, 3rd ed., with Connect plus 1-Semester Access Card; Reynolds, *et al.*; ISBN: 978-0-07-759857-0. Do not discard the online access code packaged with your new textbook! (*eBook/Used Book Alternative:* eBook and/or Standalone Access to Connect may be purchased online; Reynolds, *et al.*; ISBN: 978-0-07-750723-7). More information below.
- i>clicker Plus remote (classroom response system); W. H. Freeman; ISBN: 978-1-4641-2015-2 (or older version). (*Alternative:* i>clicker GO app for web-enabled devices). More information below.

Textbook: Access to the textbook and to Connect (online) is essential for this course. Complete reading assignments prior to the class in which they will be discussed for the most effective learning.

- New textbooks from the bookstore include Connect access. Please register online (no later than February 15) using the Connect website listed below, or follow the link on Moodle.
- You may purchase Connect plus Standalone Access online by visiting the Connect website listed below, or follow the link on Moodle. Use the promo code *SpringStudent*. You may wish to try the 21-day, full-access free trial (includes eBook) if you're waiting to purchase a hard copy or wish to try the eBook before buying it. Be sure to purchase Connect before the trial period expires to avoid disruption of your coursework.
- Register for Connect using your first and last names as shown on official University rosters.

- Connect website: http://connect.mcgraw-hill.com/class/l_stevens_section_02_spring_2014_mwf_210pm.
- A hard copy of the textbook is available on reserve at Mansfield Library.

i>clicker: The i>clicker will be used during every class period. The i>clicker provides me with feedback on student understanding and participation. We will start using i>clickers on **Monday, February 3**.

- You are responsible for bringing your remote daily – no exceptions. Handwritten responses will not be accepted. For most questions, you will receive credit for answering the question; some questions may be graded for accuracy. At the end of the semester, your six lowest-scoring days will be dropped from your i>clicker total.
- To receive credit, you must register your i>clicker remote online by the start of class on **Monday, February 3**. To register your i>clicker, go to www1.iclicker.com/register-an-iclicker. Complete the fields with your first and last names (use your official university name), **Student ID from your Griz Card** (for Student ID box), and remote ID (found on the back of your remote, or behind the battery).
- If you own a web-enabled device, you may choose to use the i>clicker GO app. While the app is free, you must purchase a subscription (\$15.99 for 1 year) after a 14-day trial. I recommend you test the app before purchasing the subscription, as the app relies on the stability of our classroom's WiFi.
- Using another student's i>clicker in class is considered academic dishonesty. Involved students will receive an i>clicker grade of 0% for the semester, and will be subject to academic penalty by the University. Use of the i>clicker GO app or the eBook version of the textbook will be the only acceptable reasons for accessing electronics during class.

Moodle: Access the Moodle course supplement at umonline.umat.edu. Please check the site regularly for course announcements, lecture notes, handouts, and links to online assignments. For technical support, contact UMonline at (406) 243-4999, (866) 255-1641 (toll-free), or umonline-help@umontana.edu during business hours, M-F.

Online Assignments: Due dates for online assignments are listed on the schedule included here.

- **LearnSmart** modules are on Connect – links to all assignments will be posted on Moodle. LearnSmart modules are a study tool. These assignments are required, but will be scored on completion only. Your grade will be visible in Connect. Grades will be periodically transferred to the Moodle gradebook. Please contact McGraw-Hill Connect staff for technical support.
- **Reading quizzes** will be available on Moodle. You have up to 20 minutes to complete a reading quiz, and you will be able to attempt each reading quiz twice before the deadline. Your highest scoring attempt will be recorded. Reading quiz grades will be immediately visible in the Moodle gradebook.

Exams: There will be three midterm exams and a final exam with a comprehensive portion. Exams will include multiple choice and free-response questions, including concept sketches. All material covered in lecture, text, and assignments (see schedule below) may appear on exams. Makeup exams will be allowed only for university-sponsored events and for extraordinary circumstances. The lowest of your three midterm grades will be dropped. All students are required to take the final exam. Please note the date and time of the final exam on the course schedule provided below. Students are responsible for bring a red Scantron sheet and pencil to each exam. Scantron sheets (red) are available for purchase at the UM Bookstore and the UC Market.

<u>Assessment:</u>	Exams 1, 2, and 3	35% total, lowest exam dropped
	Final Exam (required)	20%
	Reading Quizzes	15%
	In-Class Assignments	10%
	i>clicker Responses	10%
	LearnSmart modules	10%

Extra Credit: There will be an optional Saturday field trip worth 5% (participation and short assignment) – the trip is tentatively scheduled for Saturday, April 19. Other options will be offered on the Moodle site during the semester. *Maximum extra credit is no more than 5% of course grade.*

Final Grade: This course must be taken for a traditional letter grade (minimum final grade of C-) to meet the Natural Sciences General Education requirement. The following scale will be used to assign final grades.

A 93-100%	A- 90-92%	B+ 87-89%	B 83-86%	B- 80-82%	C+ 77-79%
C 73-76%	C- 70-72%	D+ 67-69%	D 63-66%	D- 60-62%	F 59 or below

Studying & Time Expectations: A standard benchmark for a college science class is 2-3 hours of work outside of class for each hour in class. For our 3-hour class, you should plan to spend 6-9 hours per week outside of class on reading assignments, LearnSmart modules, reading quizzes, and studying in ways that are most effective for you.

Classroom Courtesy: This is a large class and the classroom can be expected to be full. Please be considerate of your classmates. Do not engage in extraneous talking or other distracting behaviors in the classroom. Use of cell phones, laptops, and other electronic devices for purposes other than class participation (eBook, i>clicker GO) is distracting, disrespectful, and not acceptable in the classroom.

Communication: Please note that I will use only your official UM email to communicate with you. This is required to comply with FERPA (the Federal Educational Rights and Privacy Act). Email is the preferred way to contact me – voicemail will take longer to reach me. It is your responsibility to make sure you read messages sent to your UM email address in a timely manner.

Students with Disabilities: Whenever possible, and in accordance with civil rights laws, the University of Montana will attempt to provide reasonable modifications to students with disabilities who request and require them. Please feel free to set up a time to meet with me to discuss any modifications that may be necessary for this course. For more information, visit the Disability Services for Students website at www.umt.edu/dss/

Academic Integrity: Students at the University of Montana are expected to practice academic honesty at all times. Academic misconduct is subject to academic penalty by the course instructor and/or university sanctions by the university. All students must be familiar with the Student Conduct Code, which is available online at life.umt.edu/vpsa/student_conduct.php.

Course Schedule: The course schedule (below), policies, procedures, and assignments for this course are subject to change in the event of extenuating circumstances, by mutual agreement, and/or to ensure better student learning. You will be notified accordingly.

Course Schedule – GEO 101N-02 – Spring 2014

Date	Lecture Topic/Reading Assignment	Online Assignment
M Jan. 27	Ch. 1 The Nature of Geology (omit 1.4, 1.9-10)	
W Jan. 29	Ch. 2 Investigating Geologic Questions (omit 2.2, 2.10-11)	
F Jan. 31	Ch. 2 Investigating Geologic Questions	
M Feb. 3	Ch. 3 Plate Tectonics (omit 3.9, add 10.3)	LearnSmart Ch. 2 – due 2:00 PM Reading Quiz Ch. 1 & 2 – due 2:00 PM
W Feb. 5	Ch. 3 Plate Tectonics	
F Feb. 7	Ch. 3 Plate Tectonics	
M Feb. 10	Ch. 3 Plate Tectonics	LearnSmart Ch. 3 – due 2:00 PM Reading Quiz Ch. 3 – due 2:00 PM
W Feb. 12	Ch. 4 Earth Materials (omit 4.7, 4.11-4.13, 4.15)	
F Feb. 14	Ch. 4 Earth Materials	
M Feb. 17	Presidents Day Holiday – No Class	LearnSmart Ch. 4 – due Mon., 11:59 PM Reading Quiz Ch. 4 – due Mon., 11:59 PM
W Feb. 19	EXAM 1 (Covers Chapters 1, 2, 3, 4)	
F Feb. 21	Ch. 5 Igneous Environments (omit 5.5, 5.8, 5.13-15)	
M Feb. 24	Ch. 5 Igneous Environments	
W Feb. 26	Ch. 6 Volcanoes and Volcanic Hazards (omit 6.5, 6.9, 6.15)	
F Feb. 28	Ch. 6 Volcanoes and Volcanic Hazards	
M Mar. 3	Ch. 7 Sedimentary Environments and Rocks (omit 7.8-12, 7.15)	LearnSmart Ch. 5 & 6 – due 2:00 PM Reading Quiz Ch. 5 & 6 – due 2:00 PM
W Mar. 5	Ch. 7 Sedimentary Environments and Rocks	
F Mar. 7	Ch. 8 Deformation and Metamorphism (omit 8.10-11, 8.13-15)	
M Mar. 10	Ch. 8 Deformation and Metamorphism	LearnSmart Ch. 7 & 8 – due 2:00 PM Reading Quiz Ch. 7 & 8 – due 2:00 PM
W Mar. 12	EXAM 2 (Covers Chapters 5, 6, 7, 8)	
F Mar. 14	Ch. 9 Geologic Time (omit 9.7, 9.10-12)	

Date	Lecture Topic/Reading Assignment	Online Assignment
M Mar. 17	Ch. 9 Geologic Time	
W Mar. 19	Ch. 9 Geologic Time	
F Mar. 21	Ch. 11 Mountains, Basins, and Continents (omit 11.3, 11.5, 11.9, 11.11, 11.14)	
M Mar. 24	Ch. 11 Mountains, Basins, and Continents	LearnSmart Ch. 9 – due 2:00 PM Reading Quiz Ch. 9 – due 2:00 PM
W Mar. 26	Ch. 12 Earthquakes and Earth's Interior (omit 12.11-14, 12.17)	
F Mar. 28	Ch. 12 Earthquakes and Earth's Interior	LearnSmart Ch. 11 – due Monday, Mar. 31, 11:59 PM Reading Quiz Ch. 11 – due Monday, Mar. 31, 11:59 PM
	Spring Break	
M Apr. 7	Ch. 12 Earthquakes and Earth's Interior	LearnSmart Ch. 12 – due 2:00 PM Reading Quiz Ch. 12 – due 2:00 PM
W Apr. 9	Ch. 18 Energy and Mineral Resources (omit 18.6-8, 18.14)	
F Apr. 11	Ch. 18 Energy and Mineral Resources	
M Apr. 14	Ch. 18 Energy and Mineral Resources	LearnSmart Ch. 18 – due 2:00 PM Reading Quiz Ch. 18 – due 2:00 PM
W Apr. 16	EXAM 3 (Covers Chapters 11, 12, 9, 18)	
F Apr. 18	Ch. 16 Streams and Flooding (omit 16.4, 16.10-11, 16.15-16)	
M Apr. 21	Ch. 16 Streams and Flooding	
W Apr. 23	Ch. 17 Water Resources (omit 17.6-7)	
F Apr. 25	Ch. 17 Water Resources	
M Apr. 28	Ch. 17 Water Resources	LearnSmart Ch. 16 – due 2:00 PM Reading Quiz Ch. 16 – due 2:00 PM
W Apr. 30	Ch. 13 Climate (only 13.10-13.12)	
F May 2	Ch. 13 Climate	
M May 5	Ch. 14 Glaciers and Changing Sea Levels (omit 14.9-16, 14.18-19)	LearnSmart Ch. 17 – due 2:00 PM Reading Quiz Ch. 17 – due 2:00 PM
W May 7	Ch. 14 Glaciers and Changing Sea Levels	
F May 9	Ch. 14 Glaciers and Changing Sea Levels	LearnSmart Ch. 13 & 14 – due Mon. May 12, 2:00 PM
T May 13	FINAL EXAM (Covers Chapters 16, 17, 13, 14), 3:20-5:20 PM, CHCB 131	

*Tentative date for optional, extra credit field trip: Saturday, April 19.